

REMARKS

In response to the above-identified Decision, Applicant amends the application and seeks reconsideration thereof. Claims 12-17 are pending. Claims 12, 15-16 and 17 are amended. Amendments to those claims are supported at page 10, line 10 through page 11, line 21 and Figures 3-5 of the application as originally filed. No additional matter has been added therein.

I. Claims Rejected Under 35 U.S.C. §102

The Patent Office rejects claims 12-17 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,323,131 issued to Obeng, et al. ("Obeng"). It is axiomatic that to be anticipate every limitation of a claim must be disclosed in a single reference.

Applicant respectfully disagrees with the rejection above for at least the reason that Obeng does not disclose a seed layer on the barrier material and substantially lining the sidewall; and a conductive material on the seed layer and directly contacting the surface of the circuit device, as required by amended claim 12.

Obeng discloses diffusion barrier/adhesion promoter film 18 which may be a self assembling organic film, followed by the deposition of a copper seed layer which is then capped with a thick copper film 20 by known techniques to give rise to the structure shown in Figure 1 (b). (See column 4, lines 20-25; and Figure 1(b)). As noted by the Board of Patent Appeals and Interferences ("the Board"), this is the only expressed treatment of the seed layer and there is no evidence that a seed layer is shown in any of the figures.

Consequently the Patent Office has not identified and Applicant is unable to find any disclosure in Obeng regarding whether the seed layer is or is not between thick copper film 20 and an interconnect below thick copper film 20. According to "known techniques" the seed layer typically exists between thick copper film 20 and an interconnect below thick copper film 20. Moreover the Patent Office has not identified and Applicant is unable to find any disclosure in Obeng of removing any portion of the seed layer within the trench or via (see column 4, lines 26-30 and Figure 1(c)). Specifically in the transition from Figure 1(b) to Figure 1(c), since layer 22 already exists in the trench and via of Figure 1(b), the CMP process to planarize layer 20 to the structure shown in Figure 1(c), cannot remove any of the seed layer existing in the via and trench from underneath layer 20. Hence, the Patent Office has not identified and Applicant is unable to find any disclosure in Obeng of a conductive material on the seed layer and directly contacting the surface of the circuit, as required by amended claim 1 because Obeng does not show or disclose a failure to deposit, or a removal of, any of the seed layer from within the trench or via. Hence for at least this first reason Applicant respectfully requests the Patent Office withdraw the rejection above of claim 12.

In addition, Applicant disagrees with the rejection above and submits that claim 16 is allowable because Obeng does not disclose a seed layer on the barrier material and substantially lining the sidewall, but not on the surface of the circuit device, as required by amended claim 16.

An argument analogous to the one above with respect to claim 12 applies here as well. Hence, for at least the reasons noted above with respect to claim 12, Applicant respectfully requests the Patent Office withdraw the rejection above of claim 16.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for at least the same reasons given above in support of their base claims.

Moreover, Applicant disagrees with the rejection above with respect to dependent claims 15 and 17, for at least the reason that Obeng does not disclose a mask layer that is not over the surface of the circuit device such that the barrier material can be selectively etched in the presence of the mask layer, as required by amended claims 15 and 17.

As noted above, Obeng does not show or disclose removal of any of the copper seed layer from within the via or trench. Moreover, the Patent Office has not identified and Applicant is unable to find any disclosure in Obeng of a mask layer in the trench or via, such that the barrier material can be selectively etched in the presence of the mask layer, as required by amended claims 15 and 17. Hence, for at least this additional reason Applicant respectfully requests the Patent Office withdraw the rejection above of dependent claims 15 and 17.

CONCLUSION

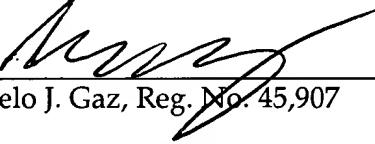
In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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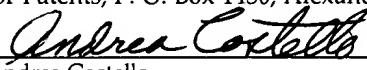
Dated: 10/19/2005

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450.

 October 19, 2005
Andrea Costello Date